

IN THE CLAIMS:

Please cancel claim 1 without prejudice, and change claims 2 through 6, 9 through 11, 13 through 17; and 25 and 29 — all to read as indicated below.

1. (canceled)

1 2. (currently amended) The method of claim 11, wherein:
2 the superpixels defined for each available colori-
3 metric level are all colorimetrically equivalent.

1 3. (currently amended) A method for printing an image;
2 said method comprising:
3 for at least each one of particular colorimetric
4 levels that will be found in rendering the image, defin-
5 ing plural different superpixels;
6 generating or receiving data for the image;
7 rendering the image by a process that finds, for
8 positions within the image:
9
10 colorimetric levels, and
11
12 a randomized value corresponding to substan-
13 tially each found colorimetric level;
14
15 applying the randomized value to select a superpixel
16 from the plural superpixels for each found colorimetric
17 level; and
18 printing the image using the selected superpixels;
19 ~~The method of claim 1,~~
20 wherein [:] the superpixels defined for at least one
21 colorimetric level vary in colorimetric value so as to
22 express that colorimetric level, on average, as a nonin-
23 tegral number of colorant quanta.

1 4. (currently amended) The method of claim 3 [[1]],
2 wherein the rendering step operates in a computational
3 space that has:
4 one dimension for each colorant available; plus
5 at least one dummy dimension which generates said
6 randomized value.

1 5. (currently amended) A method for printing an image;
2 said method comprising:
3 for at least each one of particular colorimetric
4 levels that will be found in rendering the image, defin-
5 ing plural different superpixels;
6 generating or receiving data for the image;
7 rendering the image by a process that finds, for
8 positions within the image:
9
10 colorimetric levels, and
11
12 a randomized value corresponding to substan-
13 tially each found colorimetric level;
14
15 applying the randomized value to select a superpixel
16 from the plural superpixels for each found colorimetric
17 level; and
18 printing the image using the selected superpixels;
19 ~~and The method of claim 4,~~ wherein:
20 the rendering step operates in a computational space
21 that has:
22
23 one dimension for each colorant available; plus
24
25 at least one dummy dimension which generates
26 said randomized value; and
27
28 operation of the rendering step in the at least one
29 dummy dimension comprises using at least one least-sig-
30 nificant bit that:
31
32 results from the rendering step in a colorant
33 dimension, but
34
35 is substantially decorrelated from the colori-
36 metric levels found by the rendering step.

1 6. (currently amended) A method for printing an image;
2 said method comprising:

3 for at least each one of particular colorimetric
4 levels that will be found in rendering the image, defin-
5 ing plural different superpixels;

6 generating or receiving data for the image;
7 rendering the image by a process that finds, for
8 positions within the image:

9
10 colorimetric levels, and

11
12 a randomized value corresponding to substan-
13 tially each found colorimetric level;

14
15 applying the randomized value to select a superpixel
16 from the plural superpixels for each found colorimetric
17 level; and

18 printing the image using the selected superpixels;
19 and wherein:

20 the rendering step operates in a computational space
21 that has:

22
23 one dimension for each colorant available; plus

24
25 at least one dummy dimension which generates said
26 randomized value; ~~The method of claim 4,~~
27 wherein:

28
29 operation of the rendering step in the at least one
30 dummy dimension comprises deriving or maintaining a ma-
31 trix of randomized values; and

32 the applying step comprises mapping a particular
33 location in the matrix to a particular position in the
34 image, to choose a random value at said particular loca-
35 tion in the matrix for selection of a superpixel to use
36 at said particular position in the image.

1 7. (original claim) The method of claim 6, wherein:
2 the matrix comprises a set of smaller matrices, each
3 of which contains randomized numbers corresponding to
4 available superpixels; and
5 successive ones of the smaller matrices are progres-
6 sively stepped across the first-mentioned matrix.

1 8. (original claim) The method of claim 4, wherein:
2 the rendering step operates by error diffusion.

1 9. (currently amended) The method of claim 3 [[1]],
2 wherein:
3 the rendering step operates by error diffusion.

1 10. (currently amended) The method of claim 3 [[1]],
2 wherein:
3 the image consists of color values in each of a
4 large multiplicity of pixels;
5 said positions comprise substantially each pixel of
6 the image, at a reduced resolution relative to the print-
7 ing step.

1 11. (currently amended) A method for printing an image;
2 said method comprising:
3 for each of particular available colorimetric lev-
4 els, defining plural different superpixels;
5 generating or receiving data for the image;
6 rendering the image by a process that finds colori-
7 metric levels for positions within the image;
8 deriving or maintaining a matrix of randomized
9 values;
10 mapping a particular location in the matrix to a
11 particular position in the image, to choose a randomized
12 value at said particular location in the matrix for se-
13 lection of a superpixel to use at said particular posi-
14 tion in the image; and
15 printing the image using the selected superpixels.

1 12. (original claim) The method of claim 11, wherein:
2 the matrix is derived or corrected to possess a
3 blue-noise property of the randomized values.

1 13. (currently amended) The method of claim 11, where-
2 in:
3 the mapping step comprises interpreting the random-
4 ized value, chosen found at said [[each]] location in the
5 matrix, as a pointer into a certain dimension of a table
6 of superpixels.

1 14. (currently amended) The method of claim 11, where-
2 in:

3 the mapping step comprises interpreting an input or
4 output colorimetric level, for the particular position in
5 the image, as a pointer into a certain dimension of a
6 [[the]] table of superpixels.

1 15. (currently amended) The method of claim 11, wherein
2 the mapping step comprises:

3 interpreting the randomized value, chosen found at
4 said [[each]] location in the matrix, as a pointer into a
5 first dimension of a table of superpixels; and

6 interpreting an input or output colorimetric level,
7 for the particular position in the image, as a pointer
8 into a second dimension of the table of superpixels.

1 16. (currently amended) The method of claim 15 [[17]],
2 wherein:

3 the mapping step comprises interpreting identifica-
4 tion of a color plane being rendered, as a pointer into a
5 third dimension of the table of superpixels.

1 17. (currently amended) The method of claim 15 [[11]],
2 wherein:

3 the mapping step comprises using said chosen found
4 randomized value for control of superpixels in all color
5 planes.

1 18. (original claim) The method of claim 11, wherein:
2 the matrix comprises a set of smaller matrices, each
3 of which contains randomized numbers corresponding to
4 available superpixels; and
5 successive ones of the smaller matrices are progres-
6 sively stepped across the first-mentioned matrix.

1 19. (original claim) The method of claim 18, wherein:
2 said stepped smaller matrices also are tiled across
3 the first-mentioned matrix and wrapped around at an edge
4 of the first-mentioned matrix.

1 20. (original claim) The method of claim 18, wherein:
2 the smaller matrices are all substantially
3 identical.

1 21. (original claim) The method of claim 18, wherein:
2 the smaller matrices comprise plural different in-
3 terleaved arrays.

1 22. (original claim) The method of claim 21, wherein:
2 the plural different arrays are different sizes.

1 23. (original claim) The method of claim 18, wherein:
2 the smaller matrices are one-dimensional matrices.

1 24. (original claim) The method of claim 11, wherein:
2 the superpixels defined for at least one colorimet-
3 ric level vary in colorimetric value so as to express
4 that colorimetric level, on average, as a nonintegral
5 number of colorant quanta.

1 25. (currently amended) A method for printing an image;
2 said method comprising the steps of:
3 defining, for each one of particular available col-
4 orimetric levels, plural different superpixels;
5 generating or receiving data for the image;
6 rendering the image by a process that finds colori-
7 metric levels for positions within the image;
8 selecting a superpixel from the plural superpixels
9 for the found colorimetric level;
10 controlling the defining or selecting step, or both,
11 to impart a blue-noise property to the selected superpix-
12 els as an aggregate; and
13 printing the image using the selected superpixels.

1 26. (original claim) The method of claim 25, wherein:
2 the defining step comprises screening the superpix-
3 els for spatial-frequency characteristics;
4 whereby spatial frequencies, other than information
5 in the image, appear substantially consistent in the
6 printed image.

1 27. (original claim) The method of claim 26, wherein:
2 the screening means comprises performing spatial
3 Fourier analysis.

1 28. (original claim) The method of claim 25, wherein:
2 the superpixels defined for at least one colorimet-
3 ric level vary in colorimetric value so as to express
4 that colorimetric level, on average, as a nonintegral
5 number of colorant quanta.

6

1 29. (currently amended) Apparatus for printing an im-
2 age; said apparatus comprising:
3 means for defining plural different superpixels for
4 each one of particular available colorimetric levels;
5 means for generating or receiving data for the im-
6 age;
7 means for rendering the image by a process that
8 finds colorimetric levels for positions within the image;
9 means for generating or receiving a randomized value
10 for each of the positions within the image;
11 means for applying the randomized value, in common
12 for all color planes, to select for each color plane a
13 respective superpixel from the plural superpixels for the
14 found colorimetric level; and
15 means for printing the image using the selected
16 superpixels.

1 30. (original claim) The apparatus of claim 29, where-
2 in:
3 the applying means comprise means for employing a
4 randomized value which corresponds to a compatible set of
5 superpixels for different color planes.

1 31. (original claim) The apparatus of claim 30, where-
2 in:

3 the compatible set of superpixels comprises coordi-
4 nated placement of colorant quantity in the different
5 color planes to achieve a certain image-quality
6 objective.

1 32. (original claim) The apparatus of claim 31, where-
2 in:

3 said coordinated placement comprises elimination of
4 substantially all drop-on-drop placement across planes,
5 within highlight regions of the image.

1 33. (original claim) The apparatus of claim 29, where-
2 in:

3 the superpixels defined for at least one colorimet-
4 ric level vary in colorimetric value so as to express
5 that colorimetric level, on average, as a nonintegral
6 number of colorant quanta.